

SOLUTIONS



RESEARCH PROGRAMS WINTER 2006

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PROJECT HIGHLIGHTS

RIDE SPECIFICATION REVIEW

http://www.mdt.mt.gov/research/projects/const/ride_review.shtml

Sierra Transportation Engineers (STE) reviewed MDT's ride specification, comparing it with current literature and state of the practice. STE determined the current ride specification has all the necessary elements of a comprehensive specification and is more developed than the specifications of many other states; however, there were opportunities for fine-tuning the current ride specification and improving processes and procedures.

As a result of this research, MDT will move from four classes to two categories; which will continue to be based on pre-pave IRI and the number of opportunities to improve IRI during construction. Pay adjustment factor relationships will be gradual rather than step functions and tolerances will be adjusted to better reflect the paving quality expected.

In addition to the final report, a number of additional implementation documents will also be prepared, including: revised ride specification, revised methods for testing surface smoothness and profile, quality control/quality assurance plan, and profiler operations manual. These documents can soon be found at http://www.mdt.mt.gov/research/projects/const/ride_review.shtml. MDT feels the quality of the roads in Montana will be improved as a result of this research.

For more information, contact Sue Sillick at ssillick@mt.gov or 406-444-7693 or Matt Strizich at mstrizich@mt.gov or 406-444-6297.





NEW 2006 EXPERIMENTAL PROJECTS

Evaluation of radar speed display trailer-mounted device for speed reduction in construction work zones

The purpose of this project is to determine the effectiveness of trailer-mounted radar speed display (RSD) devices in reducing construction work zone speeds. Two trailers will be deployed at each of two locations, the Bear Canyon project, Interstate 90 near Bozeman, and the Gallatin Canyon area on Highway 191. If results are positive, it is hoped RSD's can be used throughout the state to improve safety through our work zones.



Evaluation of recycled rubber and plastic mats as weed prevention and erosion control around guardrails

This project is an experimental trial using recycled rubber and plastic mats for weed prevention and erosion control around guardrails. Two products made from recycled rubber and plastic mats will be used to determine if this could be a cost-effective alternative to the current process of paving with asphalt. This project is located on Interstate 15, Great Falls District, Cascade County.



Evaluation of high density polyethylene pipe (hdpe) culverts in a mainline application

The purpose of this project is to determine the effectiveness of three sizes (750mm (approximately 30"), 900mm (approximately 35") and 1200mm (approximately 47")) of HDPE culverts in a mainline application. The product chosen is the ADS N-12WT IB corrugated watertight, smooth interior polyethylene pipe. This project is located on highway 59 in Rosebud County.





Evaluation of an automated fixed anti-icing device

This project is an experimental trial of an automated anti-icing device. The chosen device will be the Boschung 'Fixed Automated Spray Technology' or 'FAST' and will be installed on the West Laurel interchange on I-90 in the eastbound lane.



Base stabilization procedures

The purpose of this project is to determine a better way to effectively stabilize base course, improving compaction and binding for the acceptance of the asphalt cement (AC) layer. The experimental layout will include the two current practices of stabilization using conventional gravel and/or magnesium chloride and tack as a comparison with up to four other as yet-to-be determined methods.

For more information on current experimental projects, visit <http://www.mdt.mt.gov/research/projects/eps1.shtml> or contact Craig abernathy at cabernathy@mt.gov or 406-444-6269.

RESEARCH PROJECTS: IDEA TO PRODUCT

Five research ideas submitted during the 2006 research solicitation were moved forward to technical panels.

- Computerized 3-Dimensional Highway Design and Modeling
- Disparity/Availability Study
- Evaluation of the Superpave Volumetric Specification
- I-15 North Corridor - Canadian Truck Load Bridge and Roadway Analysis
- Montana Weeds to Web

Technical panels are formed to investigate the problem and determine its direction. First, technical panels determine if a research need truly exists, who should conduct the research, and, if the research is funded, makes sure the research stays on track and the results are implemented as appropriate.

For more information, contact Sue Sillick at 406-444-7693 or ssillick@mt.gov.



LIBRARY CORNER

Meet our new librarian

After living for 22 years in the midwest, Lisa Autio (originally from Helena) has returned to her native Montana to be near family. Like many librarians, she came to the library field as a second career, after working in public schools and college art departments. Lisa has an undergraduate degree from University of Washington, Seattle, and a Master's in Library and Information Science from UW-Milwaukee, Wisconsin. She and her husband (now deceased) raised two children: Lolly is now starting graduate school at Brown University on a scholarship, and Will is a junior at Hellgate High, Missoula.

Prior to moving back to Montana, Lisa worked in academic and medical libraries in LaCrosse, Wisconsin. Her most recent job was managing a one-person hospital library in a medical center affiliated with Mayo Clinic Medical Libraries, a position she described as fun and action-packed.

Lisa considers libraries to be at the center of the Information Age, and librarians and other knowledge workers will be essential to the 21st century. As the economist Peter Drucker has said, "In today's economy, the most important resource is no longer labor, capital or land, it is knowledge."

The value of quality research is extremely important to the transportation field, in terms of money and time saved, avoidance of research that has already been done, increased efficiency, better decision-making, and increased safety and saved lives (Osif). Another study cited three areas where special libraries create enormous value for their organizations: They prove less



expensive than getting information elsewhere—or not getting it at all. Two, it is cheaper to run an in-house library, and three, less expensive to have a librarian find information for employees. A librarian can also make connections and network, help transportation agencies avoid redundant projects, and make discoveries of serendipity—unsought bits of information that nonetheless prove important.

Although transportation as an industry contributes more than \$306 billion to the United States GDP (2001), it lags far behind medicine or agriculture in the amounts invested in libraries or knowledge centers (National Transportation Knowledge Network pamphlet, 2/2005).

As your new librarian, Lisa will do her best to find out what exactly you do and then decide how the library can find or lead you to the right information. Please contact Lisa at lautio@mt.gov or 406-444-6125.



DID YOU KNOW?

Transportation Research Board Annual Meeting was held in January

The 85th Transportation Research Board (TRB) Annual Meeting was held January 22-26, 2006. This is the largest transportation research meeting covering all modes of transportation, with over 10,000 people attending this meeting from around the world. More than 2,800 papers were submitted and more than 1,000 sessions, workshops, and committee meetings were held. A wealth of information was presented and discussed at this meeting.

This meeting offers the ability to learn about new developments in research, policy, and practice; allows networking with peers from other governmental agencies, industry, and academia, both within and between disciplines; provides the forum to discuss issues and share perspectives; and offers the unique opportunity to guide the future of transportation.

Dan Hill of the Highways and Engineering Division is responsible for MDT's implementation of the mechanistic-empirical pavement design guide. He said he left the meeting with many ideas to improve pavement management, some of which will facilitate implementation of this design guide. Lynn Zanto of the Rail, Transit, and Planning Division valued the opportunity to discuss issues and share perspectives with her peers. She gained critical information as to how other states have made pre-NEPA corridor planning successful; use of this information within the Department will minimize environmental

document costs and speed up project delivery. Bill Cloud of the Rail, Transit, and Planning Division gained valuable insights on metadata, GIS and linear referencing systems, and the data requirements of SAFETEA-LU. Sandy Straehl of the Rail, Transit, and Planning Division made connections with other states to provide information that will assist MDT in cost estimation and asset management. Sue Sillick of the Highways and Engineering Division gained valuable information on the future of information management, partnering, technology transfer, peer exchanges, and performance measures. Craig Abernathy of the Highways and Engineering Division brought home information to assist with a number of experimental projects, such as our HDPE culvert project; use of this information will allow the Department to prevent "reinventing the wheel".

More than 1,700 papers presented at this meeting can now be found at http://www.mdt.mt.gov/research/docs/trb_cd/isv7/default2.htm. There is a special category for Design and Construction Practice-Ready Papers. In addition, some sessions were recorded as e-sessions; you can view PowerPoint presentations and listen to audio recordings of e-sessions at <http://trb.org/conferences/e-session/2006am.htm>. Other e-sessions for various TRB conferences can be found at <http://trb.org/conferences/e-session/>.

Please contact Sue Sillick at ssillick@mt.gov or 406-444-7693 for assistance.



CALENDAR OF EVENTS

April

MDT RRC Meeting – 4/25
Preliminary NCHRP Program Announced

May

MDT RRC Meeting – 5/30
NCHRP Synthesis of Practice Topics Selected
NCHRP Panel Member Nominations Due
TCRP Synthesis of Practice Topics Selected
TIG Request for Topics

June

MDT RRC Meeting – 6/27
TCRP Problem Statements Due
TRB Call for Papers for 2007 Annual Meeting
State CEO Ballot on NCHRP Program Due

July

AASHTO Research Advisory Committee National
Meeting – 7/10-13
MDT RRC Meeting – 7/25

August

LTAP and Second International Transportation
Technology Transfer Symposium – 7/30-8/3
TRB Annual Meeting Abstracts Due – 8/1
MDT RRC Meeting – 8/29

September

NCHRP Problem Statements Due – 9/15
MDT RRC Meeting – 9/26

NEW RESEARCH REPORTS

Effects of Defensive Vehicle Handling Training on Novice Driver Safety: Phase 1. Preparation for Advanced Driving Training

<http://www.mdt.mt.gov/research/projects/safety/defensive.shtml>

Animal-Vehicle Collisions and Habitat Connectivity Along Highway 83 in the Seeley-Swan Valley

<http://www.mdt.mt.gov/research/projects/env/seeley.shtml>

2005 Annual Report for The Montana Department of Transportation Research Programs

http://www.mdt.mt.gov/research/docs/annual_report/2005.pdf

A listing of all past and current projects can be found at:

www.mdt.mt.gov/research/projects/sub_listing.shtml.



NEW RESEARCH PROJECTS

Axial Capacity of Piles Supported on Intermediate Geomaterials

<http://www.mdt.mt.gov/research/projects/mat/axial.shtml>

A High Fidelity Driving Simulator as a Tool for Design and Evaluation of Highway Infrastructure Upgrades

http://www.mdt.mt.gov/research/projects/safety/high_fidelity.shtml

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www.mdt.mt.gov/research/projects/sub_listing.shtml.

REMINDER

Information on research services and products, such as research and experimental project processes and reports, and technology transfer services, including our library catalog can be found on the Research web site at www.mdt.mt.gov/research.

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